

METHOD OF FORMING TRENCH ISOLATIONS

ABSTRACT OF THE DISCLOSURE

Methods of forming trench isolations are provided. A method includes

5 providing a semiconductor substrate having a cell array region and a peripheral region. At least one cell trench in the cell array region and at least one peripheral trench wider than the cell trench in the peripheral region of the substrate are formed. The cell and the peripheral trenches have sidewalls. A first dielectric layer that partially fills the cell and peripheral trenches is formed over the substrate. At least one photoresist pattern that exposes at least the cell trench partially filled with the first dielectric layer is formed over the substrate.

10 The first dielectric layer formed on the sidewalls of the exposed cell trench is etched by using the photoresist pattern as a etch mask. Subsequently, the photoresist pattern is removed. A second dielectric layer filling the cell and

15 peripheral trenches is formed over the substrate where the photoresist pattern is removed.